

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No. 0771MH-60032-US

First Named Inventor:

FRED A. ANTONINI

Serial No.: **10/523,942**

35 USC § 371 Date: 8 FEBRUARY 2005

For: **SILICONE-ELASTOMER FILM
AND METHOD OF
MANUFACTURING SAME**

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Examiner: **ALICIA ANN CHEVALIER**

Confirmation No.: **8554**

Art Unit: 1794

DECLARATION OF FRED A. ANTONINI
UNDER 37 C.F.R. § 1.132

I, FRED A. ANTONINI, the undersigned, declare that:

1. I am a named inventor in the captioned application.
2. I am over eighteen years of age and am competent to make this

Declaration.

3. I was employed by 3M of St. Paul, Minnesota for approximately seven years from approximately January 1973 to June 1980, during which time I was involved in the design and development of mechanical fasteners and obtained training and product knowledge relating to mechanical flexible fasteners, including flexible stem head fasteners, pressure sensitive adhesives, and pressure sensitive tape products, including the manufacture of such products.

4. After my employment with 3M, I formed my own company which, for approximately twenty years, converted and fabricated products using pressure sensitive plastic films, solid and foam elastomers, and virtually all types of thin flexible

materials from numerous manufacturers. I have broad exposure to most suppliers and manufacturers of plastic films, pressure sensitive adhesives, and elastomers. In addition, the company is a preferred customer of 3M and Rogers Corporation, which has allowed me the opportunity to be introduced to some of the latest technologies offered by those companies, including 3M's micro-replication and Rogers Corporation's silicone technologies.

5. I continue to work in these industries and with these products to this day.

6. Through my experience, I am familiar with the level of skill in the art and, more particularly, the level of ordinary skill in the art as it pertains to plastic films, elastomers, and pressure sensitive adhesives.

7. I have reviewed U.S. Patent 6,372,323 to Kobe *et al.* ("Kobe"). Kobe discloses a slip control article that includes a plurality of small upstanding stems. The Kobe device requires upstanding stems and corresponding micro-channels. The upstanding stems are made from an elastomeric material. The Kobe article depends upon either: (1) the interface of two opposing slip control articles; or (2) pressure that is applied to the stem protrusions, such as by the squeezing of a person's hand about the article, to inhibit slippage by creating a mechanical interface. While Kobe discloses that the slip control device operates primarily as a result of the frictional characteristics of the upstanding stems, the upstanding stems must be made from a material that can withstand the shear forces exerted on the upstanding stems during use. In addition, the stems must be sufficiently hard to remain upstanding. Accordingly, Kobe uses elastomers having higher elastic moduli, which also exhibit higher hardnesses than a silicone elastomer having a durometer of less than 30 on the Shore A scale. Kobe's

Table 2 confirms this interpretation, as the hardnesses of the elastomers used in the examples exhibit hardnesses from 38 to 80 on the Shore A scale. The material having the lowest hardness, Vector™ 4111, is only used only with another elastomer, Estane™ 58661, which would increase the hardness of the resulting polymer, as Estane™ 58661 exhibits a hardness of 80 on the Shore A scale, according to Kobe. If the stems in Kobe were too soft, they would not remain upstanding and would not channel away moisture, nor would they be able to engage with another slip control article. It is important to note that the upstanding stems in the Kobe device do not form a “layer,” in that the upstanding stems do not present a gripping surface, unless sufficient weight or pressure is applied to deform the stems. For this reason, the Kobe film would not be a suitable anti-slip film to prevent light-weight objects, such as cell phones or other light-weight handheld devices, from sliding off of surfaces.

8. I have also reviewed U.S. Patent 5,300,171 to Braun *et al.* (“Braun”). Braun teaches a pressure sensitive adhesive tape that includes a central, elongated member made from silicone elastomer disposed between layers of pressure sensitive silicone adhesive. Braun teaches that a preferred silicone elastomer for the elongated member exhibits a durometer between 30 and 70 on the Shore A scale. Thick silicone products having a durometer of about 30 or greater, do not need a dimensionally stable film, as such products have their own internal strength, thereby exhibiting dimensional stability. Braun teaches applying a curable silicone adhesive to a silicone foam. Braun makes no mention, whatsoever, of casting a silicone elastomer directly onto a dimensionally stable, thin plastic film. Braun makes no suggestion of the use of any thin silicone elastomer material having a durometer of less than 30 on the Shore A scale.

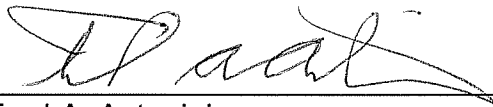
9. The present invention would not have been obvious to one of ordinary skill in the art at the time of the invention in view of Kobe and Braun. To my knowledge, a thin layer of silicone elastomer having a durometer of less than 30 on the Shore A scale has never, before the present invention, been cast directly onto a first surface of a dimensionally stable, thin plastic film, to produce a film in which the layer of silicone elastomer remains affixed to the plastic film during use, such as in a non-slip or a gripping use. This leap was beyond any of the conventional bonding methods usually applied to difficult-to-bond materials. The present invention has produced a uniquely capable film, one that can be adhered to a surface and handled without appreciable distortion or displacement from where the film was placed. Moreover, the low durometer, *i.e.*, less than 30 on the Shore A scale, provides critical frictional properties to the film of the present invention.

10. Furthermore, one of ordinary skill in the art at the time of the present invention would have appreciated that it would not be desirable to use a silicone elastomer having a durometer of less than 30 on the Shore A scale in the upstanding stems of Kobe, because such silicone elastomers exhibit shear strengths that are lower than desirable for Kobe's article. One of ordinary skill in the art would have further appreciated that thin silicone elastomers having durometers of less than 30 on the Shore A scale are difficult to bond to other materials and, accordingly, such a person of ordinary skill would avoid such a silicone elastomer in implementations wherein the silicone elastomer was applied to another material.

11. The term "heat stabilized," as it pertains to a plastic film, would be understood by those skilled in the art having the benefit of the disclosure in the above-

referenced application to mean a film that is substantially dimensionally stable when subjected to heat.

12. I hereby declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.



Fred A. Antonini

10 Mar 08

Date